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SPECIFICATION FOR THIOMETON EMULSIFIABLE CONCENTRATES

(First Reprint MARCH 1989)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

March 1967

Indian Standard

SPECIFICATION FOR THIOMETON EMULSIFIABLE CONCENTRATES

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AMENDMENT NO. 1 SEPTEMBER 1969

TO

IS : 3905-1966 SPECIFICATION FOR THIOMETON EMULSIFIABLE CONCENTRATES

Addenda

(*Page* 9, *clause* **D-2.11**) — Add the following new clause after **D-2.11**:

D-2.12 Methyl Orange Indicator Solution — 0·1 percent.

(*Page* 9, *clause* **D-3.1**) — Add the following at the end of the clause:

'To the filterate and washings add a drop of methyl orange indicator solution and neutralize the excess acid with concentrated ammonium hydroxide solution.'

(AFCDC 6)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 OCTOBER 1972
TO
IS : 3905-1966 SPECIFICATION FOR THIOMETON EMULSIFIABLE CONCENTRATES

Alteration

(*Page* 4, *clause* **2.3.1**) — Substitute the following for the existing clause:

' **2.3.1** *Thiometon Content* — When determined by the method prescribed in Appendix D, the observed thiometon content, percent by weight, of any of the samples shall not differ from the nominal value by more than the percent tolerance limits indicated below:

Sl No.	*Nominal Value, Percent*	*Tolerance Limit, Percent*
i)	Up to 10	$^{+10}_{-5}$ of the nominal value
ii)	Above 10 and up to 50	± 5 „
iii)	Above 50	$^{+5}_{-3}$ „

2.3.1.1 The actual value of the technical material in the formulation shall be calculated to the second decimal place and then rounded off to the first decimal place before applying the tolerances given above. '

(AFCDC 6)

AMENDMENT NO. 3 DECEMBER 1973
TO
IS : 3905-1966 SPECIFICATION FOR THIOMETON EMULSIFIABLE CONCENTRATES

Alterations

(*Page* 4, *clause* 2.3.2) — Substitute the following for the existing clause:

'2.3.2 *Acidity* — When tested by the method as prescribed in Appendix D of IS : 3904-1966†, the acidity, if any, calculated as sulphuric acid (H_2SO_4), shall not be more than 1·0 percent by weight.'

(*Page* 4, *foot-note*) — Add the following new foot-note at the end:

'†Specification for thiometon concentrates.'

(*Page* 5, *clause* 4.1, *line* 2) — Substitute 'Appendix E' *for* 'Appendix F'.

(*Page* 11, *Appendix* E) — Delete the appendix, redesignate 'Appendix F' as 'Appendix E' and change the clause numbers accordingly wherever they appear.

(AFCDC 6)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 4 JULY 1988
TO
IS : 3905 - 1966 SPECIFICATION FOR THIOMETON EMULSIFIABLE CONCENTRATES

(*Page* 4, *clause* 2.2.5) — Add the following note at the end of the clause :

'NOTE — The material need not be subjected to heat treatment if it has crossed half of its shelf life as ascertained from the date of manufacture and date of expiry declared on the container.'

(AFCDC 6)

Reprography Unit, BIS, New Delhi, India

Indian Standard

SPECIFICATION FOR THIOMETON EMULSIFIABLE CONCENTRATES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 November 1966, after the draft finalized by the Pest Control Sectional Committee had been approved by the Agricultural and Food Products Division Council and the Chemical Division Council.

0.2 Thiometon emulsifiable concentrates containing varying percentages of thiometon concentrates are used in the control of pests of agricultural importance.

0.3 Taking into consideration the views of producers, consumers, testing authorities and technologists, the Sectional Committee responsible for the preparation of this standard felt that it should be related to the manufacturing and trade practices followed in the country in this field.

0.4 This standard is one of a series of Indian Standards on pesticides and their formulations.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of test for thiometon emulsifiable concentrates.

2. REQUIREMENTS

2.1 Constituents — The material shall consist of thiometon concentrates, dissolved in suitable solvent(s), together with emulsifying agent(s), and with or without stabilizer(s).

2.1.1 Thiometon concentrates, employed in the manufacture of this material shall conform to IS : 3904-1966†.

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*Rules for rounding off numerical values (*revised*).

†Specification for thiometon concentrates.

2.2 Physical — The material shall comply with the following physical requirements.

2.2.1 *Description* — The material shall be a clear, blue liquid, free from extraneous matter.

2.2.2 *Cold Test* — No turbidity or separation of solid and/or oily matter shall occur when the material is subjected to the cold test at 10°C as prescribed in Appendix A.

NOTE — If the cold test is required to be carried out at lower than 10°C it shall be so specified by the purchaser.

2.2.3 *Flash Point* (*Abel*) — When determined by the method P : 20 of IS : 1448 (Part I)-1960*, the flash point of the material shall be above 24·5°C.

2.2.4 *Emulsion Stability* — The creaming of the sediment, if any, shall not in either case exceed 2·0 ml at the top or bottom of a 100-ml cylinder, when tested by one of the methods prescribed in Appendix B.

2.2.5 *Heat Stability* — After treating in accordance with Appendix C, the material shall comply with the requirements specified in **2.2.2** and **2.2.4**.

2.3 Chemical — The material shall comply with the following chemical requirements.

2.3.1 *Thiometon Content* — When determined by the method prescribed in Appendix D, the observed thiometon content, percent by weight, of any of the samples shall not differ from the nominal value by more than ±5 percent of the latter.

2.3.2 *p*H — When tested by the method prescribed in Appendix E, the *p*H of 1 percent aqueous emulsion should be between 6·5 and 7·5.

3. PACKING AND MARKING

3.1 Packing — The material shall be packed in clean and dry containers made of aluminium, mild steel or tinplate, internally protected with a suitable corrosion-resistant lacquer.

3.1.1 The packing shall also conform to the Tariff Rules as in force from time to time for packing of goods falling in the category of materials of high flash point.

3.2 Marking — The containers shall be securely closed and shall bear legibly and indelibly the following information:

a) Name of the material;
b) Name of the manufacturer;

---

*Methods of test for petroleum and its products, Part I.

c) Date of manufacture;

d) Batch number;

e) Net volume of contents;

f) Nominal thiometon content, percent by weight; and

g) The minimum cautionary notice worded as under:

> 'FLAMMABLE. THIOMETON IS TOXIC. AVOID CONTAMINATION OF FOODSTUFFS AND ANIMAL FEEDS, AND INHALATION OF MISTS MADE FROM THIS INSECTICIDE. IF IT COMES IN CONTACT WITH SKIN, WASH WITH SOAP AND WATER. DO NOT USE THIS CONTAINER FOR ANY OTHER PURPOSE EXCEPT FOR STORAGE OF PESTICIDES. IF POISONING OCCURS, CALL A PHYSICIAN. ANTIDOTE—ATROPINE SUPPORTED BY 2 PAM (2 PYRIDINE-2-ALDOXINE-N-METHYL-IODIDE).'

3.2.1 The containers may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

. SAMPLING

.1 Representative samples of the material shall be drawn as prescribed n Appendix F.

. TESTS

.1 Tests shall be carried out by the appropriate methods referred to n **2.2.2**, **2.2.3**, **2.2.4**, **2.2.5**, **2.3.1** and **2.3.2**.

.2 Quality of Reagents — Unless specified otherwise, pure chemicals nd distilled water (*see* IS: 1070-1960*) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

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*Specification for water, distilled quality (*revised*).

APPENDIX A

(*Clause* 2.2.2)

COLD TEST

A-1. PROCEDURE

A-1.1 Take 50 ml of the material in a 100-ml transparent glass container and close it with a cork or stopper fitted with the thermometer. Cool the material to 10°C by placing the container in the water maintained at 9° to 10°C. Gently stir the material in the container at intervals for one hour maintaining the temperature of the material at 10°C. At the end of one hour examine the material for any turbidity or separated solid and/or oily matter.

NOTE — In case, the purchaser specifies that the test should be carried out at 0°C, the material in a container shall be cooled to 0°C by placing the container in a bath of crushed ice and the test carried out at 0°C instead of 10°C.

APPENDIX B

(*Clause* 2.2.4)

DETERMINATION OF EMULSION STABILITY

B-1. METHODS

B-1.1 Two methods are prescribed for the determination of emulsion stability of the material. The method to be employed shall depend upon the manufacturer's instructions for the preparation of the diluted emulsion from the material. Method 1 shall be employed in the case of a material which is required to be added to standard hard water for the preparation of the diluted emulsion while Method 2 shall be employed in the case of a material to which standard hard water should be added to prepare the diluted emulsion.

B-2. METHOD 1

B-2.1 Apparatus

B-2.1.1 *Beaker* — 250 ml capacity with an internal diameter of 6·0 to 6·5 cm and marked at 100 ml.

B-2.1.2 *Mohr-Type Pipette*

B-2.1.3 *Glass Rod* — 4 to 6 mm in diameter and of a convenient length.

B-2.1.4 *Graduated Cylinder* — 100 ml capacity and graduated at every one millilitre from 2 ml to 100 ml.

B-2.2 Reagent

B-2.2.1 *Standard Hard Water* — Dissolve 2·740 g of calcium carbonate and 0·276 g of magnesium oxide in the minimum of dilute hydrochloric acid (approximately 2N). Expel the excess acid by evaporation to dryness on a water-bath and dissolve the residue in a small quantity of water. Transfer this solution quantitatively to a 100-ml graduated flask, make up the volume with water and mix. Pipette 10 ml of this solution into a one-litre graduated flask, make up the volume with water and mix.

NOTE — Standard hard water is defined as water which provides a hardness of 342 parts per million, calculated as calcium carbonate and has the following composition:

Calcium chloride, anhydrous	0·304 g
Magnesium chloride hexahydrate	0·139 g
Distilled water	To make 1 000 ml

B-2.3 Procedure — Pour 75 to 80 ml of standard hard water at a temperature of 30° ± 1°C into the beaker. By means of the Mohr-type pipette, add 2 ml of the concentrate to the standard hard water contained in the beaker. (The material should be added to the standard hard water at the rate of 25 to 30 ml per minute, with the pointed end of the pipette 2·0 cm inside the beaker and allowing the material to pour directly into the standard hard water and not along the sides of the beaker. The contents of the beaker should be stirred with the glass rod at about four revolutions per second during the addition.) Add more water to bring the volume of the diluted emulsion to the 100-ml mark with continued stirring and transfer immediately to the clean and dry graduated cylinder. Keep the cylinder with its contents at a temperature of 30° ± 1°C in a thermostatically controlled bath for half an hour. After this period, note the volume of the creamed matter at the top and the sediment at the bottom in the cylinder.

B-2.4 Report — Report the total volume in millilitres of the creamed matter at the top and the sediment at the bottom in the cylinder.

B-3. METHOD 2

B-3.1 Procedure — Place 2 ml of the concentrate in the beaker. Add sufficient standard hard water at a temperature of 30° ± 1°C into the dropping funnel and add it to the material contained in the beaker at the rate of 15 to 20 ml per minute. During the addition, continuously stir the contents of the beaker with the glass rod. Stop the addition of the standard hard water just when the volume of diluted emulsion in the beaker reaches 100 ml. Transfer the diluted emulsion immediately to the clean and dry graduated cylinder. Keep the cylinder with its contents at a temperature of 30° ± 1°C in a thermostatically controlled bath for half an hour. After half an hour, note the volume of the creamed matter at the top and the sediment at the bottom, if any.

B-3.2 Report — Report the total volume in millilitres of the creamed matter at the top and the sediment at the bottom in the cylinder.

APPENDIX C

(*Clause* 2.2.5)

TEST FOR HEAT STABILITY

C-1. APPARATUS

C-1.1 Glass Bottle — of convenient size, with an air-tight glass stopper.

C-1.2 Thermostat — capable of maintaining the temperature at 50° ± 1°C.

C-2. PROCEDURE

C-2.1 Pour the material into the glass bottle until it is about three-fourths full. Stopper the bottle and seal it air-tight with collodion or sealing wax to avoid any loss of volatile solvent. Place the filled bottle in the thermostat maintained at 50° ± 1°C for 24 hours. After this period, remove the bottle from the thermostat and cool its contents to room temperature.

C-2.2 Test the treated material for compliance with the requirements of **2.2.2**, **2.2.4** and **2.3.1**.

APPENDIX D

(*Clause* 2.3.1)

DETERMINATION OF THIOMETON

D-1. PRINCIPLE OF METHOD

D-1.1 Thiometon is decomposed by heating it with hydrogen peroxide and concentrated sulphuric acid, and the phosphate obtained estimated either gravimetrically or volumetrically by the ammonium molybdate method.

D-2. REAGENTS

D-2.1 Hydrogen Peroxide — 30 percent (*w/w*).

D-2.2 Concentrated Sulphuric Acid — conforming to IS : 266-1961*.

D-2.3 Concentrated Nitric Acid — sp gr 1·42 (conforming to IS : 264-1950†).

D-2.4 Ammonium Molybdate Reagent — Dissolve 100 g of molybdic anhydride or 118 g of molybdic acid in a mixture of 400 ml of water and 80 ml of concentrated ammonia. Filter, if necessary. Add this solution slowly and with constant stirring into a solution containing 400 ml of concentrated nitric acid and 600 ml of water. Allow the resulting solution to stand for several days in a warm place or until a portion heated to 40° to 45°C gives no yellow precipitate. Preserve the decanted solution in a glass stoppered bottle.

D-2.5 Wash Liquid — Dissolve 10 g of ammonium nitrate in water, add 8 ml of concentrated nitric acid and dilute with water to 200 ml.

D-2.6 Potassium Ferrocyanide Solution — 5 percent (*w/v*).

D-2.7 Magnesia Mixture — Dissolve 55 g of crystallised magnesium chloride ($MgCl_2.6H_2O$) in water, and after adding 140 g of ammonium chloride and 130 ml of ammonia, dilute to one litre.

D-2.8 Ammonium Hydroxide Solution for Washing — 2·5 percent (*w/v*), *Min.*

D-2.9 Standard Sodium Hydroxide Solution — 0·5 N, carbonate-free.

D-2.10 Standard Hydrochloric Acid — 0·5 N.

D-2.11 Phenolphthalein Indicator Solution — Dissolve 0·1 g of phenolphthalein in 60 ml of rectified spirit conforming to IS : 323-1959‡ and dilute with distilled water to 100 ml.

D-3. PROCEDURE

D-3.1 Digestion — Weigh the sample containing 0·2 to 0·4 g of thiometon concentrates in a glass ampoule and introduce it in a 500-ml Kjeldahl digestion flask. Add 20 ml of hydrogen peroxide and 10 ml of concentrated sulphuric acid and heat over a microburner until white fumes of sulphur trioxide come out. Allow to cool, add 10 ml of concentrated nitric acid and heat again to fumes of sulphur trioxide. Cool, add 20 ml of hydrogen peroxide and heat again till white fumes are given off. After cooling add 100 ml of water, and evaporate on a water-bath to 30 to 40 ml. Filter through a filter paper and wash with water till washings are neutral.

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*Specification for sulphuric acid (*revised*).

†Specification for nitric acid.

‡Specification for rectified spirit (*revised*).

D-3.2 Gravimetric Method

D-3.2.1 Acidulate solution obtained in **D-3.1** with nitric acid, heat to 80°C, add excess of ammonium molybdate reagent (at the rate of about 75 ml reagent for every 50 mg of P) and digest at 65°C for one hour. Test for complete precipitation by adding more molybdate reagent to the clear supernatant.

D-3.2.2 Filter precipitate and wash with the wash liquid till only a faint brown colour is given on testing 5 ml of the washings with a little potassium ferrocyanide solution.

D-3.2.3 Dissolve the precipitate on the filter paper with the ammonium hydroxide solution and hot water and wash into a beaker to volume not more than 100 ml. Neutralise with hydrochloric acid to litmus paper or bromothymol blue indicator. Cool, and add slowly and with vigorous stirring magnesia mixture at the rate of about 20 ml per every 50 mg of P present. After 15 minutes add 12 ml of concentrated ammonia, let stand until supernatant is clear (usually 2 hours but preferably kept overnight), filter and wash with ammonium hydroxide solution till the washings are free from chloride ions. Dry, burn at low heat, ignite to constant weight at 950° to 1 000°C, cool in a desiccator and weigh as $Mg_2P_2O_7$. Convert to P by multiplying the weight obtained by 0·278 3.

D-3.3 Volumetric Method

D-3.3.1 Treat the ammonium phosphomolybdate precipitate obtained in **D-3.2.2** along with the filter paper with a slight excess of standard sodium hydroxide solution (say, 50 ml). Stopper the flask and shake till the precipitate dissolves completely. Dilute to 150 ml with water and titrate with 0·5 N hydrochloric acid using phenolphthalein indicator until the pink colour is completely discharged. Complete titration with 0·5 N alkali to the reappearance of the pink colour.

$$1 \text{ ml } 0{\cdot}5 \text{ N NaOH} = 0{\cdot}000\,674\,5 \text{ g P}$$

D-4. CALCULATION

D-4.1 Thiometon content, percent by weight $= \dfrac{w_1 \times 100 \times 100}{w \times 12{\cdot}6}$

where

w_1 = weight in g of P obtained as in **D-3.2.3** or **D-3.3.1**, and

w = weight in g of sample taken for the test.

APPENDIX E

(*Clause* 2.3.2)

DETERMINATION OF *p*H

E-1. APPARATUS

E-1.1 *p*H Meter

E-2. PROCEDURE

E-2.1 Dissolve 1 g of the sample in 100 ml of water of distilled quality (*see* IS : 1070-1960*) and determine its *p*H using a *p*H meter.

APPENDIX F

(*Clause* 4.1)

SAMPLING OF THIOMETON EMULSIFIABLE CONCENTRATES

F-1. GENERAL PRECAUTIONS

F-1.0 In drawing, preparing, storing and handling test samples, the following precautions and directions shall be observed.

F-1.1 Samples shall not be taken in an exposed place.

F-1.2 The sampling instrument shall be of glass and shall be clean and dry when used.

F-1.3 Proper precautions shall be taken while drawing samples since the material is highly poisonous.

F-1.4 Precautions shall be taken to protect the samples, the material being sampled, the sampling instruments and the containers for samples from adventitious contamination.

F-1.5 The samples shall be placed in leak-proof 100-ml containers of aluminium.

F-1.6 The sample containers shall be of such a size that they are almost, but not completely, filled by the sample.

F-1.7 Each sample container shall be fitted with an inner stopper, which shall be sealed in the neck of the container by means of a suitable sealing

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*Specification for water, distilled quality (*revised*).

composition. The container shall then be securely closed by screw cap aluminium closures. The containers shall then be marked with full details of sampling, the date of manufacture, name of the manufacturer and other particulars of the consignment.

F-1.8 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

F-1.9 Samples shall be protected from light.

F-2. SAMPLING INSTRUMENT

F-2.1 Sampling Tube — It shall be made of thick glass and shall be of 20 to 40 mm diameter and 400 to 800 mm in length (*see* Fig. 1). The upper and lower ends are conical and of 5 to 10 mm diameter at the narrow ends. Handling is facilitated by two rings at the upper end. For taking a sample, the tube is first closed at the top with the thumb or a stopper and lowered until the desired depth is reached. It is then opened for a short time to admit the material and finally closed and withdrawn.

F-2.1.1 For small containers, a smaller sampling tube of suitable dimensions may be used.

F-3. SCALE OF SAMPLING

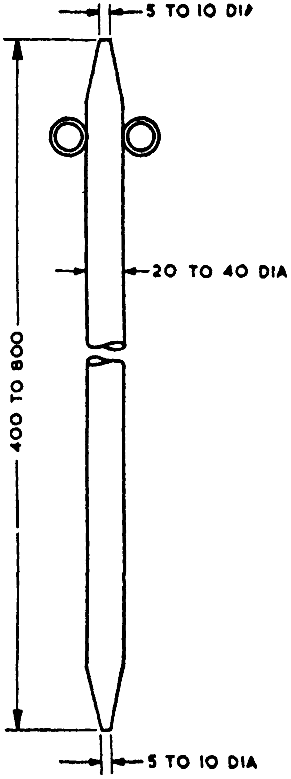
F-3.1 Lot — All the containers in a single consignment of the material drawn from the same batch of manufacture shall constitute a lot. If a consignment is declared or known to consist of different batches of manufacture, the containers belonging to the same batch shall be grouped together and each such group shall constitute a separate lot.

F-3.1.1 Samples shall be tested for each lot for ascertaining the conformity of the material to the requirements of this specification.

F-3.2 The number (n) of containers to be chosen from the lot shall depend on the size of the lot (N) and shall be in accordance with col 1 and 2 of Table 1.

F-3.3 These containers shall be chosen at random from the lot and in order to ensure the randomness of selection, some random number table as agreed to between the purchaser and the vendor, shall be used. In case such a table is not available, the following procedure shall be adopted:

> Starting from any container in the lot, count them as 1, 2, 3,......, up to r, in a systematic manner, where r is equal to the integral part of the value of N/n, N being the total number of containers in the lot and n the number of containers to be chosen (*see* Table 1). Every rth container thus counted shall be separated until the requisite number of containers is obtained from the lot to give the samples for test.



All dimensions in millimetres.
FIG. 1 SAMPLING TUBE

TABLE 1 NUMBER OF CONTAINERS TO BE CHOSEN FOR SAMPLING

(*Clause* F-3.2)

LOT SIZE *N* (1)	NO. OF CONTAINERS TO BE CHOSEN *n* (2)
3 to 15	3
16 ,, 40	4
41 ,, 65	5
66 ,, 110	7
Over 110	10

F-4. TEST SAMPLES AND REFEREE SAMPLES

F-4.1 Before drawing the test samples, mix thoroughly the contents of each container selected by shaking or stirring by suitable means, or by rolling, so as to bring all portions into uniform distribution. Draw by inserting the sampling instrument through the bung-hole or any other convenient opening, small portions of the material from different parts of each selected container. The total quantity of the material drawn from each container shall be not less than 350 ml.

F-4.2 Mix thoroughly all the material drawn from the same container. A small but equal quantity shall be taken from the each selected container and shall be well mixed together so as to form a sample of not less than 450 ml. This sample shall be divided into three equal composite test samples, one for the purchaser, another for the vendor and the third for the referee.

F-4.3 The remaining material drawn from a container (after the quantity needed for formation of the composite test sample has been taken out) shall be divided into three equal parts. These parts shall be immediately transferred separately to thoroughly dried bottles which are then sealed air-tight with stoppers and labelled with all the particulars of sampling given under **F-1.7**. The material in each such sealed bottle shall constitute an individual test sample. These individual test samples shall be separated into three identical sets of individual test samples in such a way that each set has a sample representing each selected container. One of these three sets shall be marked for the purchaser, another for the vendor and the third for the referee.

F-4.4 Referee Samples — Referee samples shall consist of the composite test sample (*see* **F-4.2**) and a set of individual test samples (*see* **F-4.3**) marked for this purpose and shall bear the seals of the purchaser and the vendor. These shall be kept at a place agreed to between the two.

F-5. TESTING OF SAMPLES

F-5.0 The number of tests mentioned in **F-5.1** and **F-5.2** shall be first conducted on the test samples marked for the purchaser. In the contingencies, such as loss, spoilage and spilling of the purchaser's test samples or if the vendor so desires, the test samples marked for the vendor may be tested. In case of a dispute, the referee test samples shall be tested and the test results obtained on the referee test samples shall be considered as final.

F-5.1 Tests for the determination of thiometon content and emulsion stability shall be conducted on each of the individual test samples (*see* **F-4.3**).

F-5.2 Tests for the determination of the remaining characteristics, namely, cold test, flash point, heat stability, and acidity or alkalinity, shall be conducted on the composite test sample as prepared under **F-4.2**.

F-6. CRITERIA FOR CONFORMITY

F-6.1 A lot shall be declared as conforming to the specification, when:

a) each of the test results for thiometon content and emulsion stability satisfies the corresponding requirement specified in **2**. If, however, one or more test results do not satisfy the specified requirements, the conformity of the lot shall be ascertained in accordance with **F-6.1.1**.

b) the test results on the composite test sample for cold test, flash point, heat stability, and acidity or alkalinity, satisfy the corresponding requirements given in **2**.

F-6.1.1 In case one or more of the test results do not satisfy the requirements for thiometon content and emulsion stability, the following procedure shall be adopted for determining the conformity of the material in respect of these characteristics. The mean and the range of the corresponding test results shall be calculated as:

$$\text{Mean } (\bar{X}) = \frac{\text{Sum of the test results}}{\text{Number of test results}}$$

Range (R) = Difference between the highest and the lowest value obtained for the test results

The appropriate expressions as shown in col 6 of Table 2 shall be calculated. If the values of these expressions satisfy the relevant condition as given in col 6 of Table 2, the lot shall be declared to have satisfied the requirements for thiometon content and emulsion stability.

TABLE 2 CRITERION FOR CONFORMITY

SL No.	CHARACTERISTIC	TEST RESULTS 1, 2, 3,...n	MEAN	RANGE	CRITERION FOR CONFORMITY
(1)	(2)	(3)	(4)	(5)	(6)
i)	Thiometon content, percent by weight	—	$\bar{X}_1$	R_1	($\bar{X}_1 \pm 0{\cdot}6\ R_1$) shall lie within the nominal value ±5 percent of the nominal value
ii)	Emulsion stability, creaming and/or sediment, in ml	—	$\bar{X}_2$	R_2	($\bar{X}_2 + 0{\cdot}6\ R_2$) $\nless 2{\cdot}0$

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(*Page* 8, *Appendix* C (*see also Amendments No.* 4 *and* 5) — Delete.

(*Page* 11, *Appendix* E (*see also Amendments No.* 3 *and* 5) — Delete.

(*Page* 11, *Appendix* F (*see also Amendments No.* 3 *and* 5) — Delete.

(FAD 1)

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